

TECHNICAL NOTES

U. S. DEPARTMENT OF AGRICULTURE

NEVADA

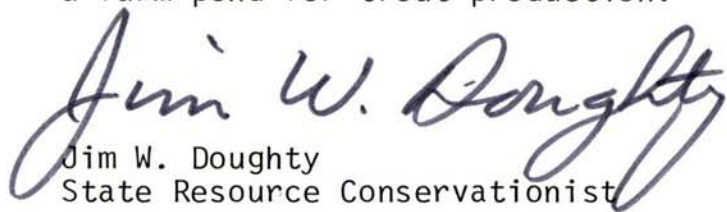
SOIL CONSERVATION SERVICE

TN - BIOLOGY - NV-22

June 23, 1989

MANAGING A FARM POND FOR TROUT PRODUCTION

The attached outline contains information concerning the management of a farm pond for trout production.

A handwritten signature in cursive script that reads "Jim W. Doughty". The signature is written in dark ink and is positioned above the printed name and title.

Jim W. Doughty
State Resource Conservationist

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Land and Water Management
Biology Training Series No. 22

MANAGING A FARM POND FOR TROUT PRODUCTION

I. Introduction

A. An acre of properly managed farm pond water will about equal the production of meat (trout) that may be obtained from an acre of non-irrigated pasture. Pound for pound, acre for acre, a managed pond will out-produce poor pasture.

1. Trout production -- about 100 pounds per year, per acre. Trout dress out about 65% of live weight.

II. The important essentials of pond management for trout production include:

- A. Proper design and construction of pond.
- B. Adequate water supply and control of flow.
- C. Proper stocking.
- D. Management of water.

III. Design and construction of farm pond.

- A. Follow specifications and design recommendations included in
 1. Handbook Of Engineering Practices, S.C.S. Pacific Region.
 2. Job Sheet, How To Build A Farm Pond For Fish Production, S.C.S. 7-L-14000-27.
 3. Technical Note, Biology #4 Fish Escape-Proof Pond Outlet Structures.

IV. Water supply and control of flow.

- A. Supply.
 1. Source of water should be cool enough to maintain surface-foot temperatures below .
 - 75° for rainbow trout
 - 72° - 73° for German brown trout
 - 70° for cut-throat trout
 - 65° for eastern brook trout
 2. Source of water should be within pH range of 6 to 8.
 3. Water supply should be free of silt and other foreign material.
- B. Control of water flow through pond.
 1. Constant flow of water may be desirable but not necessary.
 2. Pond can not be managed without full control of water.
 3. Regulate flow to:
 - a. Maintain desired depths.
 - b. Maintain proper oxygen content. (Minimum safe limit about 4 parts per million.
 - c. Prevent solid freezing in winter.
 - d. Maintain proper safe temperatures for fish.

V. Proper stocking.

- A. Rainbow trout probably the most satisfactory species for stocking ponds.
- B. Trout stocking rate or carrying capacity of pond is determined by:

1. Surface area of pond.
 2. Quality of the pond.
 3. Management practices proposed.
 4. Size of the fish.
- C. Standard trout stocking rates per surface acre of fertilized water.
1. 350 fry or
 2. 300 fingerlings or.
 3. 50 adults.
- D. Trout stocking rates for non-fertilized ponds.
1. About one-half of above rates. Rate may be increased if source of water supply is rich in natural foods.
- E. Trout stocking rates may be increased by use of supplemental feed. This rate is yet to be determined.
- F. Planting directions.
1. Do not expose fry or fingerlings to sudden change in water temperature, pH or dissolved O₂ or CO₂.
 2. Set container (½ full) in pond; gradually add pond water for 15 to 20 minutes until container is full; release fish slowly.
- G. Restocking.
1. Trout do not spawn in ponds.
 2. Restocking may be accomplished by (a) replacing trout caught by purchase of new stock, or (b) establishing spawning beds in streams supplying water to the pond.
 3. Artificial restocking.
 - a. Annual stocking at initial rate gives steadier fishing but smaller fish.
 - b. Restocking every other year may be done in pond not intensively fished. Allows more growth of fish.
 - c. Do not restock with fry or fingerlings until most of large trout have been caught.
 4. Spawning.
 - a. Spawning beds may be established in cold streams supplying water to pond.
 - b. A bed for an acre of pond water should be about 75 square feet --25' long by 3' wide
 - c. Spawning bed should contain about 1 foot of coarse sand.
 - d. Flow of water over beds should be 10" deep.

Management of water

- A. Practical system of pond management is based on "food chain." (see illustration on following page.)
- B. Food chain illustrates:
1. Carrying capacity.
 2. Danger of overstocking.
 3. Danger of mixing species.
 4. One reason for "good" and "poor" fishing.
- C. Fertilization of the water increases the production of insects and other aquatic life upon which trout feed.
- D. Fertilization promotes growth of plankton that clouds water and shades out undesirable water weed growths.